REMARKS

Claims 1-27 are at issue in the case. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

OBJECTION TO THE DRAWINGS

The insulation layer 177 between the winding wire 124 and the stator segment core 120 is now identified in FIG. 10A. The central potions 153 between the slits 150 and 152 that are deformed are now identified in FIG. 7A. The stack of stator plates 126 is identified in FIG. 10A. No new matter has been entered.

REJECTION UNDER 35 U.S.C. § 112

Applicant traverses the rejection of claims 1-27 under 35 U.S.C. § 112, second paragraph. The Examiner is respectfully directed to review paragraphs 6-18 of the specification that describe the difference between sensorless and sensed approaches. In the "sensed" approach, an external physical sensor senses the angular position of the rotor. For example, a rotor position transducer (RPT) with a hall effect sensor or an optical sensor physically senses the angular position of the rotor. In a "sensorless" approach, electronics that are associated with the drive circuit derive the angular rotor position without an external physical sensor. In the identified claim, an inductance sensor electronically derives rotor position from sensed inductance.

DOUBLE PATENTING

Applicant respectfully submits that the rejection of claims 1-27 under the judicially created doctrine of double patenting in not ripe. None of the claims of either application (Serial Nos. 09/803,876 or 09/817,559) have been patented. When this issue becomes ripe, Applicant may consider filing a terminal disclaimer.

REJECTION UNDER 35 U.S.C. § 102

Applicant traverses the rejection of claims 1, 4, 5, 8, 11, 14, 15, 21, and 23 under 35 U.S.C. § 102(e) as being anticipated by Koide et al.

Regarding claims 1, 11 and 21, Koide et al. does not show, teach or suggest a stator including a plurality of circumferentially-spaced stator segment assemblies.

Koide et al. discloses a stator core that is a unitary or solid stator core in both circumferential and axial directions. Koide et al. has a stator structure that is similar to the stator structure disclosed in the Background in paragraph 3. In paragraphs 19 of the Background, Applicant described significant disadvantages with this conventional solid stator core. It is difficult to wind wire in a uniform manner on salient poles of the conventional solid stator cores. Both transfer and needle winding methods achieve less than 65% slot fill. The position of the winding wire varies from one stator pole to the next and from one machine to the next. As a result, the inductance and resistance of the stator pole windings varies even though the same number of winding turns are used. By providing a circumferentially segmented stator as claimed in claims 1, 11, and 21, the winding wire can be wound precisely. In addition, the torque density of the

stator core can be improved. The inductance and resistance of the stator poles can be tightly controlled from one pole to the next and from one machine to the next.

As is set forth in paragraph 64 of the specification, the stator segment assemblies in Applicant's electric machine can be produced with a greater electrical uniformity and with lower variations in inductance and resistance. The improvements are due, in part, to the precise winding of the circumferential stator segment assemblies. As a result of the improved uniformity of electrical characteristics, sensorless rotor position sensing techniques can be employed more effectively. Sensorless rotor position sensing lowers the manufacturing costs and improves reliability and serviceability in the field. Because the manufacturing tolerances of the stator segments have been improved, less costly sensorless drive circuits can be employed and/or more accurate control can be achieved.

REJECTION UNDER 35 U.S.C. § 103

Applicant traverses the rejection of claims 9, 16-20, 22, 24, and 25 under 35 U.S.C. § 103(a) as being unpatentable over Koide et al. in view of Trago et al.

Trago et al. also has a stator structure that was described in the Background at paragraph 3. Trago et al. discloses a stator that is unitary in the circumferential direction and laminated in an axial direction. Trago et al. fails to segment the stator in a circumferential direction as required by claims 1, 11 and 21. Since claims 9, 16-20, 22, 24, and 25 depend directly or indirectly from claims 1, 11 and 21, they are allowable for the reasons set forth in the preceding section.

Applicant traverses the rejection of claims 2, 3, 6, 7, 10, 12, 13, 26, and 27 under 35 U.S.C. § 103(a) as being unpatentable over Koide et al. in view of Hoffman et al.

Hoffman et al. fails to discuss a stator that is segmented in a circumferential direction as required by claims 1, 11 and 21. Since claims 2, 3, 6, 7, 10, 12, 13, 26, and 27 depend directly or indirectly from claims 1, 11 and 21, they are allowable for the reasons set forth in the preceding section.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1211.

Respectfully submitted,

Dated: 02/01/02

By: _____
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ATTACHMENT FOR SPECIFICATION AMENDMENTS

The following is a marked up version of each replacement paragraph and/or section of the specification in which underlines indicates insertions and brackets indicate deletions.

Please replace Paragraph **[0054]** with the following paragraph:

[0054] As previously mentioned, the stator segment core 120 is defined by a plurality of stator plates 126 that are stacked together. The stator plates 126 are die cut from thin sheets of magnetically conductive material. During the die cutting operation, a first pair of slits 150 are cut into the outer rim section [120] 128 and a second pair of slits 152 are cut into the pole section 130 and central portions 153 between the slits are deformed. The slits 150 are transverse in alignment relative to the slits 152. The stator plates 126 that form the stator segment core 120 are stacked and press fit. This operation results in the stator plates 126 being releasably interconnected to define the stator segment core 120.

Please replace Paragraph **[0059]** with the following paragraph:

[0059] Terminals 170 and 172 are shown in FIGs. 8 and 10A to be mounted in slots 174 and 176 (FIG. 10C) formed in an end surface 178A of the first end cap 164A. One end of the winding wire 124 is connected to the first terminal 170 while an opposite end of the winding wire 124 is connected to the second terminal 172. Insulating material 177 is shown to be positioned to cover winding wire 124 on both lateral sides of stator

core 120. The insulating material 177 is also positioned [(but not shown)] between the stator segment core 120 and the winding wire 124 as can be seen in FIG. 7A.